THE ASTROPHYSICAL JOURNAL

CONTENTS OF VOLUME 389, PART 1

1992 APRIL 10, Number 1

	Page	Fiche
LIMITS ON A POSSIBLE VIOLATION OF THE STRONG EQUIVALENCE PRINCIPLE FROM PRIMORDIAL NUCLEOSYNTHESIS *A. Serna & R. Domínguez-Tenreiro*	1	60-B1
GALACTIC DISKS, INFALL, AND THE GLOBAL VALUE OF Ω *G. Tóth & J. P. Ostriker*	5	60-B6
A THEORETICAL CALIBRATION OF THE PLANETARY NEBULAR COSMIC DISTANCE SCALE *Michael A. Dopita, George H. Jacoby, & E. Vassiliadis*	27	60-D1
A SPECTROSCOPIC STUDY OF UM 673 A AND B: ON THE SIZE OF LYMAN-ALPHA CLOUDS *A. Smette, J. Surdej, P. A. Shaver, C. B. Foltz, F. H. Chaffee, R. J. Weymann, R. E. Williams, & P. Magain*	39	60-E1
GRAVITATIONAL MICROLENSING BY A SINGLE STAR PLUS EXTERNAL SHEAR *Shude Mao*	63	60-G9
THE MASS DISTRIBUTION FUNCTION OF GROUPS OF GALAXIES *A. Pisani, G. Giuricin, F. Mardirossian, & M. Mezzetti*	68	61-A1
TRIAXIAL GALAXY MODELS WITH THIN TUBE ORBITS *C. Hunter & P. T. de Zeeuw*	79	61-B1
A ROTATING STÄCKEL POTENTIAL *G. Contopoulos & Peter O. Vandervoort*	118	61-E1
DYNAMICS OF ULTRAHARMONIC RESONANCES IN SPIRAL GALAXIES *Paweł Artymowicz & Stephen H. Lubow*	129	61-F1
SELF-GRAVITATING THIN DISKS AROUND RAPIDLY ROTATING BLACK HOLES *Antonio Lanza*	141	61-G1
THE X-RAY SPECTRA OF HIGH-LUMINOSITY ACTIVE GALACTIC NUCLEI OBSERVED BY *GINGA* *O. R. Williams, M. J. L. Turner, G. C. Stewart, R. D. Saxton, T. Ohashi, K. Makishima, T. Kii, H. Inoue, F. Makino, K. Hayashida, & K. Koyama*	157	62-A5
EXOSAT OBSERVATIONS OF THE BROAD-LINE RADIO GALAXY 3C 382 *K. K. Ghosh & S. Soundararajaperumal*	179	62-C1
THE DENSITY EVOLUTION OF *IRAS* GALAXIES *Karl B. Fisher, Michael A. Strauss, Marc Davis, Amos Yahil, & John P. Huchra*	188	62-C11
NEAR-INFRARED SPECTRA AND CLASSIFICATION DIAGNOSTICS OF SEYFERT GALAXIES *Donald E. Osterbrock, Hien D. Tran, & Sylvain Veilleux*	196	62-D7
SPECTROSCOPY OF EMISSION-LINE NEBULAE IN POWERFUL RADIO GALAXIES: INTERPRETATION *S. A. Baum, T. M. Heckman, & W. van Breugel*	208	62-E7
SUBARCSECOND MID-INFRARED IMAGING OF THE NUCLEI OF THE INFRARED BRIGHT GALAXIES NGC 1614 AND NGC 7469 *Eric Keto, Roger Ball, John Arens, Garrett Jernigan, & Margaret Meixner*	223	62-F9
THE CONTRIBUTION OF ADVANCED POST-HAYASHI TRACK EVOLUTIONARY PHASES TO THE ULTRAVIOLET LIGHT OF ELLIPTICAL GALAXIES *Marco Castellani, Marco Limongi, & Amedeo Tornambè*	227	62-G1
LOCAL DARK MATTER FROM A CAREFULLY SELECTED SAMPLE *John N. Bahcall, Chris Flynn, & Andrew Gould*	234	62-G9

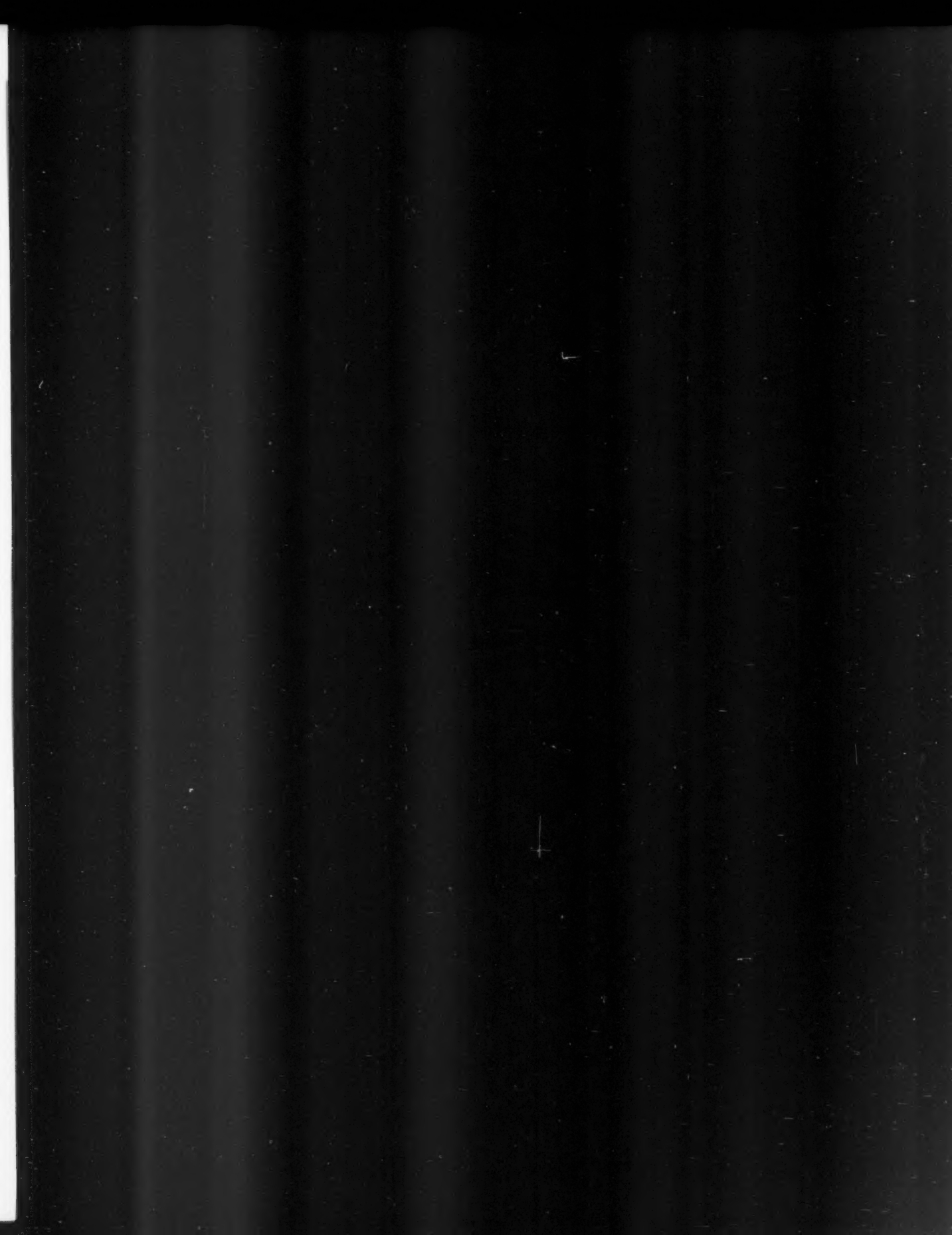
CONTENTS

	Page	Fiche
POSSIBLE SOURCES OF THE POPULATION I LITHIUM ABUNDANCE AND LIGHT-ELEMENT EVOLUTION *Lawrence E. Brown*	251	63-B1
MAGNETIC FIELDS AND RADIATIVE SHOCKS IN PROTOGALAXIES AND THE ORIGIN OF GLOBULAR CLUSTERS *Paul R. Shapiro, Alejandro Clocchiatti, & Hyesung Kang*	269	63-C11
EFFECT OF AN ENSEMBLE OF EXPLOSIONS ON THE GALACTIC DYNAMO. I. GENERAL FORMULATION *Katia Ferrière*	286	63-E1
THE MAGNETIC COLLIMATION OF BIPOLAR OUTFLOWS. I. ADIABATIC SIMULATIONS *James M. Stone & Michael L. Norman*	297	63-F1
FAINT EMISSION LINES IN THE SPECTRUM OF THE ORION NEBULA AND THE ABUNDANCES OF SOME OF THE RARER ELEMENTS *Donald E. Osterbrock, Hien D. Tran, & Sylvain Veilleux*	305	63-F11
ORION B (NGC 2024). III. BIMA SO $J_K = 2_2 \rightarrow 1_1$ OBSERVATIONS: EVIDENCE FOR PECULIAR SULFUR CHEMISTRY *Peter J. Barnes & Richard M. Crutcher*	325	64-A5
HIGH ANGULAR RESOLUTION FAR-INFRARED OBSERVATIONS OF SAGITTARIUS B2 *Paul F. Goldsmith, Dariusz C. Lis, D. F. Lester, & P. M. Harvey*	338	64-B7
NEAR-INFRARED OBSERVATIONS OF THE PROTO–PLANETARY NEBULA AFGL 618 *William B. Latter, Philip R. Maloney, Douglas M. Kelly, John H. Black, G. H. Rieke, & M. J. Rieke*	347	64-C3
THE JUGGLER: A THREE-LOBED NEAR-INFRARED REFLECTION NEBULA TOWARD CRL 2136 = OH 17.6+0.2 *Joel H. Kastner, David A. Weintraub, & C. Aspin*	357	64-D1
RARE THERMONUCLEAR EXPLOSIONS IN SHORT-PERIOD CATACLYSMIC VARIABLES, WITH POSSIBLE APPLICATION TO THE NOVA-LIKE RED VARIABLE IN THE GALAXY M31 *Icko Iben, Jr., & Alexander V. Tutukov*	369	64-E1
ON THE INTERIOR STRUCTURE OF CONTACT BINARIES AND THE LIGHT-CURVE PARADOX *Jean-Louis Tassoul*	375	64-E9
ROTATING STARS: THE ANGULAR MOMENTUM CONSTRAINTS *Fernando de Felice & Leonardo Di G. Sigalotti*	386	64-F7
ON THE PULSATIONS OF RELATIVISTIC ACCRETION DISKS AND ROTATING STARS: THE COWLING APPROXIMATION *James R. Ipser & Lee Lindblom*	392	64-G1
MASS LOSS FROM OH/IR STARS: MODELS FOR THE INFRARED EMISSION OF CIRCUMSTELLAR DUST SHELLS *K. Justtanont & A. G. G. M. Tielens*	400	64-G10
TAYLOR RELAXATION OF A GOLD-HOYLE FLUX TUBE *G. J. Rickard*	413	65-A10
LARGE-SCALE FLOWS AND SOLAR LUMINOSITY VARIATIONS *S. Arendt*	421	65-B6
MAGNETOHYDRODYNAMIC WAVES IN SHARPLY AND SMOOTHLY BOUNDED CYLINDERS *Bonnie Jean Shulman & Ellen G. Zweibel*	428	65-C1
Ne v LINE RATIOS IN THE EUV SPECTRA OF SOLAR FLARES *F. P. Keenan, E. S. Conlon, L. K. Harra, K. M. Aggarwal, & K. G. Widing*	440	65-D1
IMPROVED CALCULATIONS FOR THE C III λλ1907,1909 AND Si III λλ1883,1892 ELECTRON DENSITY SENSITIVE EMISSION-LINE RATIOS, AND A COMPARISON WITH *IUE* OBSERVATIONS *F. P. Keenan, W. A. Feibelman, & K. A. Berrington*	443	65-D5
PRELIMINARY RESULTS OF A BALLOON FLIGHT OF THE SOLAR DISK SEXTANT *E. Maier, L. Twigg, & S. Sofia*	447	65-D11

1992 APRIL 20, Number 2

LARGE-SCALE STRUCTURE IN A LOW-BIAS UNIVERSE *H. M. P. Couchman & R. G. Carlberg*	453	67-B6

CONTENTS

	Page	Fiche
COBE LIMITS ON EXPLOSIVE STRUCTURE FORMATION SCENARIOS *Janna J. Levin, Katherine Freese, & David N. Spergel*	464	67-C5
QUASAR ABSORPTION LINES WITH A NONZERO COSMOLOGICAL CONSTANT *Edwin L. Turner & Satoru Ikeuchi*	478	67-D7
THE PROPERTIES OF X-RAY SELECTED ACTIVE GALACTIC NUCLEI. II. A DEEPER LOOK AT THE COSMOLOGICAL EVOLUTION *Roberto Della Ceca, Tommaso Maccacaro, Isabella M. Gioia, Anna Wolter, & John T. Stocke*	491	67-E8
CLUSTERING OF GALAXY CLUSTERS. I. IS THE SPATIAL CLUSTER-CLUSTER CORRELATION FUNCTION ENHANCED SIGNIFICANTLY BY CONTAMINATIONS? *Yi-Peng Jing, Manolis Plionis, & Riccardo Valdarnini*	499	67-F3
THE EFFICIENCY OF GALAXY FORMATION IN CLUSTERS *Laurence P. David & George R. Blumenthal*	510	67-G1
CAN A CLOSURE MASS NEUTRINO HELP SOLVE THE SUPERNOVA SHOCK REHEATING PROBLEM? *George M. Fuller, R. Mayle, Bradley S. Meyer, & James R. Wilson*	517	67-G10
THE EVOLUTION OF A PRIMORDIAL BINARY POPULATION IN A GLOBULAR CLUSTER *Piet Hut, Steve McMillan, & Roger W. Romani*	527	68-A8
THREE-DIMENSIONAL HYDRODYNAMICAL SIMULATIONS OF COLLIDING STARS. III. COLLISIONS AND TIDAL CAPTURES OF UNEQUAL-MASS MAIN-SEQUENCE STARS *W. Benz & J. G. Hills*	546	68-C8
CLOSE ENCOUNTERS IN COULOMB AND GRAVITATIONAL SCATTERING. I. RELAXATION OF ISOTROPIC TEST-PARTICLE DISTRIBUTIONS BY LIKE-PARTICLE COLLISIONS *Edward C. Shoub*	558	68-D8
MODELING OF THE ECLIPSING BINARIES IN THE GLOBULAR CLUSTER NGC 5466 *J. Kallrath, E. F. Milone, & C. R. Stagg*	590	68-G1
INFRARED POLARIMETRY AND THE GALACTIC MAGNETIC FIELD. II. IMPROVED MODELS *Terry Jay Jones, Dimitri Klebe, & John M. Dickey*	602	69-A1
THERMAL DUST IMAGING: THE ONSET OF ASYMMETRY IN THE ULTRACOMPACT H II REGION G5.89 − 0.39 *Roger Ball, John F. Arens, J. Garrett Jernigan, Eric Keto, & Margaret M. Meixner*	616	69-B1
JET FORMATION IN THE TRANSITION FROM THE ASYMPTOTIC GIANT BRANCH TO PLANETARY NEBULAE *Noam Soker*	628	69-C1
STELLAR WIND COLLISION AND X-RAY GENERATION IN MASSIVE BINARIES *V. V. Usov*	635	69-C10
Fe II FLUORESCENCE AND ANOMALOUS C IV DOUBLET INTENSITIES IN SYMBIOTIC NOVAE *A. G. Michalitsianos, M. Kafatos, & S. R. Meier*	649	69-D12
NEW CALIBRATORS FOR THE CEPHEID PERIOD-LUMINOSITY RELATION *Nancy Remage Evans*	657	69-E8
X-RAY SCATTERING AND FLUORESCENCE IN THE WIND OF A MASSIVE X-RAY BINARY *W. Lewis, S. Rappaport, A. Levine, & F. Nagase*	665	69-F3
THE X-RAY OUTBURST FROM X0115 + 634 IN 1990 FEBRUARY *Keisuke Tamura, Hiroshi Tsunemi, Shunji Kitamoto, Kiyoshi Hayashida, & Fumiaki Nagase*	676	69-G1
DETERMING OF COHERENCE OF MICROPULSES *T. E. Strohmayer, J. M. Cordes, & H. M. Van Horn*	685	69-G12
TYPE I SUPERNOVAE AND ACCRETION-INDUCED COLLAPSES FROM CATACLYSMIC VARIABLES? *Mario Livio & James W. Truran*	695	70-A10
H0538 + 608 (=BY CAMELOPARDALIS): AN ASYNCHRONOUSLY ROTATING AM HERCULIS BINARY? *A. Silber, H. V. Bradt, M. Ishida, T. Ohashi, & R. A. Remillard*	704	70-B7
SPECTRAL EVOLUTION OF ACCRETION DISKS OF DWARF NOVAE. III. OUTBURST CYCLE OF SS CYGNI *F. H. Cheng & D. N. C. Lin*	714	70-C5
FURTHER IMPROVEMENTS OF A NEW MODEL FOR TURBULENT CONVECTION IN STARS *V. M. Canuto & I. Mazzitelli*	724	70-D1
ALFVÉNICALLY DRIVEN SLOW SHOCKS IN THE SOLAR CHROMOSPHERE AND CORONA *Joseph V. Hollweg*	731	70-D10

	Page	Fiche
HIGH-ENERGY GAMMA-RAY EMISSION FROM PION DECAY IN A SOLAR FLARE MAGNETIC LOOP *Natalie Mandzhavidze & Reuven Ramaty*	739	70-E6
CHARACTERISTICS OF HARD X-RAY SPECTRA OF IMPULSIVE SOLAR FLARES *G. A. Dulk, A. L. Kiplinger, & R. M. Winglee*	756	70-F11
VARIATIONS IN THE RELATIVE ELEMENTAL ABUNDANCES OF OXYGEN, NEON, MAGNESIUM, AND IRON IN HIGH-TEMPERATURE SOLAR ACTIVE-REGION AND FLARE PLASMAS *D. L. McKenzie & U. Feldman*	764	70-G7
STEADY SIPHON FLOWS IN CLOSED CORONAL STRUCTURES: COMPARISON WITH EXTREME-ULTRAVIOLET OBSERVATIONS *G. Peres, D. Spadaro, & G. Noci*	777	71-A8
MEASUREMENT OF THE ^{76}Se (n, γ) CAPTURE CROSS SECTION AND PHENOMENOLOGICAL s-PROCESS STUDIES: THE WEAK COMPONENT *Hermann Beer, G. Walter, & F. Käppeler*	784	71-B1
VARIABLE CARBON AND OXYGEN ABUNDANCES IN THE SOLAR WIND AS OBSERVED IN EARTH'S MAGNETOSHEATH BY *AMPTE/CCE* *R. von Steiger, S. P. Christon, G. Gloeckler, & F. M. Ipavich*	791	71-B10
ABSTRACTS OF THE ASTROPHYSICAL JOURNAL SUPPLEMENT SERIES, 1992 MAY		
Mg II Absorption in the Spectra of 103 QSOs: Implications for the Evolution of Gas in High-Redshift Galaxies *Charles C. Steidel & Wallace L. W. Sargent*	800	71-C7
The Emission-Line Properties of Low-Redshift Quasi-stellar Objects *Todd A. Boroson & Richard F. Green*	800	71-C7
The Structure of Southern Extragalactic Radio Sources *Paul A. Jones & W. Bruce McAdam*	801	71-C8
Variability of Near-Infrared Emission Lines in NGC 4151: Implications for Nuclear Star Formation *Andrea H. Prestwich, Gillian S. Wright, & Robert D. Joseph*	801	71-C8
CCD Photometry of 14 BL Lacertae Objects and Theoretical Model *G. Z. Xie, K. H. Li, F. K. Liu, R. W. Lu, J. X. Wu, J. H. Fan, Y. Y. Zhu, & F. Z. Cheng*	802	71-C9
Walls and Windows in the Molecular Milky Way *William H. Waller & Lowell E. Tacconi-Garman*	802	71-C9
Models of Planetary Nebula Spectral Evolution *Kevin Volk*	803	71-C10
Adiabatic Properties of Pulsating DA White Dwarfs. II. Mode Trapping in Compositionally Stratified Models *P. Brassard, G. Fontaine, F. Wesemael, & C. J. Hansen*	804	71-C11
Rate Coefficients for the Excitation of Infrared and Ultraviolet Lines in C II, N III, and O IV *Robert D. Blum & Anil K. Pradhan*	804	71-C11
Collision Strengths and Excitation Rate Coefficients for Transitions in Ca XV *K. M. Aggarwal*	805	71-C12
Excitation Rate Coefficients for Transitions among the n = 1, 2, and 3 Levels on He^+ *K. M. Aggarwal, J. Callaway, A. E. Kingston, & K. Unnikrishnan*	806	71-C13
AUTHOR AND SUBJECT INDEXES TO VOLUMES 387–389, PARTS 1 AND 2	i	71-E1